Vol. IV. No. 75

JANUARY 14, 1943

THE AEROPLANE SPOTTER

FOR THE ALERT

ALTERNATE THURSDAYS

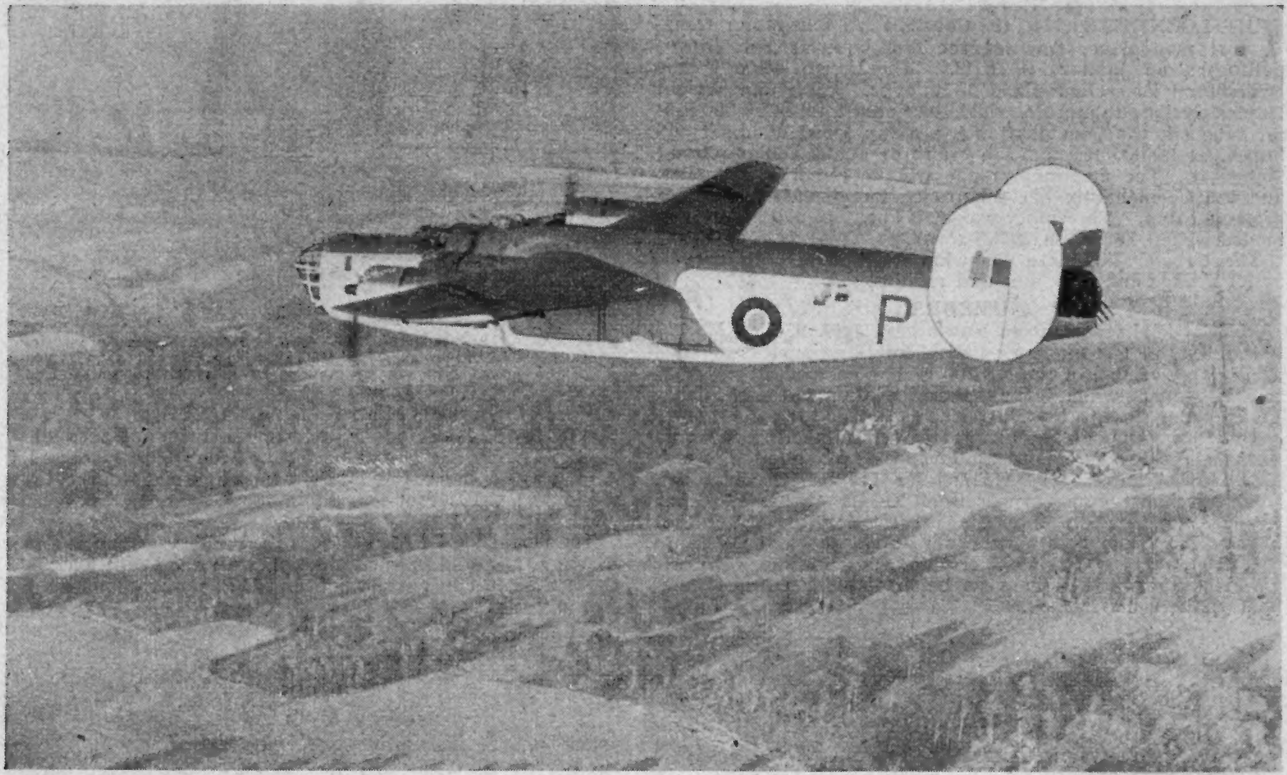
3D

OF ALL NEWSAGENTS
OR DIRECT FROM THE
PUBLISHERS, POSTAGE PAID

12 Months 8/8 6 Months 4/4 3 Months 2/2

Proprietors :
TEMPLE PRESS LTD.
Managing Director:
ROLAND E. DANGERFIELD
Head Office:
BOWLING GREEN LANE,
LONDON, E.C.1
Telephone : TERminus 3636

Incorporating the Bulletin of
The National Association of Spotters' Clubs
Edited by PETER G. MASEFIELD
M.A. (Eng.) Cantab; A.F.R.Ae.S.
Technical Editor of "THE AEROPLANE."



COASTAL LIBERATOR.—A Consolidated Liberator III of R.A.F. Coastal Command in the latest warpaint. These aeroplanes share with Sunderlands, Catalinas, Whitleys, Wellingtons and Fortresses the long ocean patrols which, with the Royal Navy, keep open the supply routes of the United Nations. This Liberator has a Boulton Paul four-gun tail rear turret and a two-gun mid-upper turret.

GERMANY sought to show the World what Air Power could do—in 1940. Dive bombers against Poland, air-borne infantry against Norway, parachute troops against Holland—a combination of all forces against France. German Air Power succeeded so long as the opposition was weak. But when the Luftwaffe had to fight independently against the R.A.F. in the "Battle of Britain" it was decisively beaten.

The reason for Germany's defeat in the eleven weeks of the "Battle of Britain" was that the Luftwaffe was and remained an Air Force tied to an Army. Germany has never understood the full strategic use of the air weapon. When history comes to be written in after years this fact may be recognised as having lost Germany the War.

The Royal Air Force—an independent Service—has always understood the true use of Air Power in its fullest sense. Not until this year has the R.A.F. had the strength to use its possibilities to the full advantage. Even now Bomber Command is sadly depleted in strength as a result of necessary diversions. Nevertheless, strength is mounting rapidly and Air Chief Marshal Sir Arthur Tedder, the new Vice-Chief of the Air Staff, in one of the most historic pronouncements on Air Power—delivered on January 9 in Cairo before leaving for home—made clear some of the fundamentals on which future air policy must be based.

"The air war is a separate war, though linked to those on land and sea," said Sir Arthur. "Only by a realisation of this fundamental fact can we stop this War going on for far longer than it need.

"The command of the air determines what happens on land and on sea, whereas armies and navies cannot affect the command of the air. Air supremacy will win the War.

"Air forces have now grown to equal status with the land and sea forces and are commanded by men who have specialised in air work for more than a quarter of a century—unlike the Axis air forces which are ruled by soldiers.

"The essential lesson learned in the Middle East is that an air force is a separate offensive entity striking at the enemy in co-operation with the Army. To-day, because of that lesson, Britain alone of the embattled nations can look to a striking force in the air, unshackled and untrammelled by parochialism and preconceived ideas, free from glib phrases like "air support" and "fighter assistance"—an Air Force which commands the air.

"From being a puny shrunken limb, the Air Arm has grown in the Middle East to a vigorous strong flail smashing at the enemy with determination and untiring effect. Clearing the skies of opposition it has gone on to administer punishment on Axis ground forces where such attacks would most benefit the Army, not by chance or luck, but by planning.

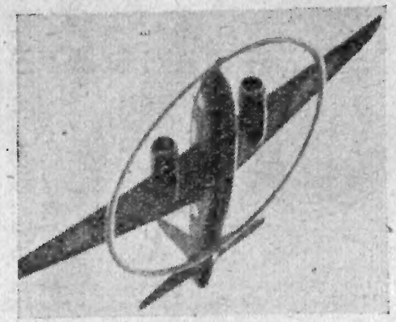
"Before a shell of the opening barrage had been fired the air force had struck at the vitals of the enemy. For days before, his landing grounds had been blasted and swept until he was forced to withdraw his aircraft to the West.

"Now he could no longer give protection to his troops from the death that came to them by day and by night from the skies, nor could he attack our ground forces as they remorsely attacked his positions.

"The cobwebs have not been shaken away from the old ideas of air support—they have been blown away and shattered by the guns and bombs of the air striking force."

Those things are what can be done by Air Power in strength. To-day we have the finest aircraft in the World and a higher production than ever before. This year is about to show what the full one of Air Power can bring about. Let us determine that, having built our strength in the air to win this War, we never allow ourselves to become weak in it again. The future depends upon it.

NEWS OF THE WEEK



THE MAGIC CIRCLE—(Left) A Vickers-Armstrongs Wellington with the radio-magnetic "mine-busting" ring attached. This ring is used to destroy magnetic mines by aeroplanes of Coastal Command flying low over the water, and has been in operation for a long time—leading to many stories of "aeroplanes with haloes on them." This photograph is from the new official book "Coastal Command"—finely told and produced—is an example of the growing practice of the authorities to preserve "scoops" for their own revelation.

THE CONSTELLATION

THE LOCKHEED C-69, the Constellation four-motor transport monoplane, flew for the first time at San Diego, California, on January 9, 1943. The Constellation is the largest and fastest aeroplane of its type. With four Wright Duplex Cyclone 18 motors, which develop a total of 10,000 h.p. for take off, the Constellation has a top speed of about 350 m.p.h. at 20,000 ft. and can cruise at about 280 m.p.h. at 25,000 ft. The maximum range will be about 4,000 miles, and the Constellation has a capacity for 40 passengers in a pressure cabin. The empty weight is about 46,000 lb. and the loaded weight 76,000 lb. (33.8 tons).

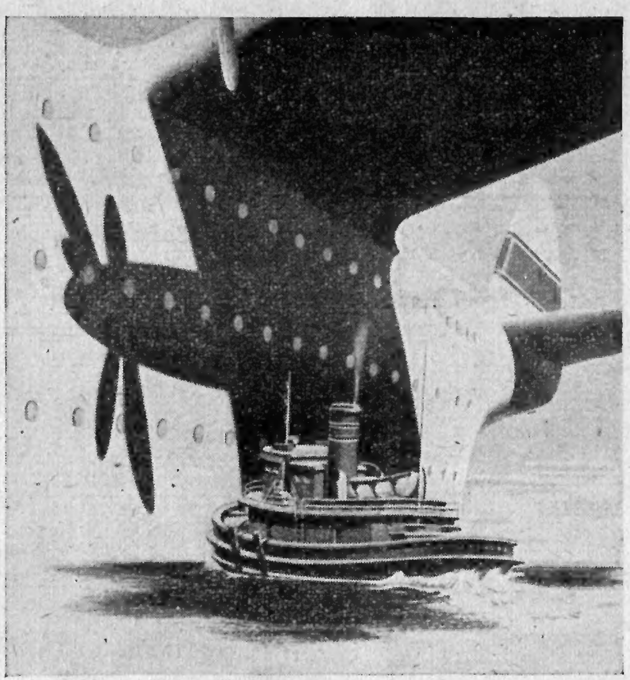
The Constellation is a low-wing monoplane with tricycle undercarriage and three fins and rudders.

NUMBERS

ALTHOUGH reports from Russia have spoken of an Me 115 that is, in fact, in error and there is no such aeroplane. The newest version of the Me 109 is reputed to be the Messerschmitt Me 209, which bears the same relation to the Me 109 as the Typhoon does to the Hurricane.

Under the present German system of numbering to avoid confusion no two aeroplanes are given the same number. As is already well known, the Heinkel He 115 has that number.

Messerschmitt numbers run from Me 108 to Me 110, then Heinkel numbers run from He 111 to He 118. After that Messerschmitt numbers start again at Me 208 and go up to Me 210, whereas the Heinkel numbers continue with the He 160. Presumably the next batch of Messerschmitt numbers will be in the 300 series.



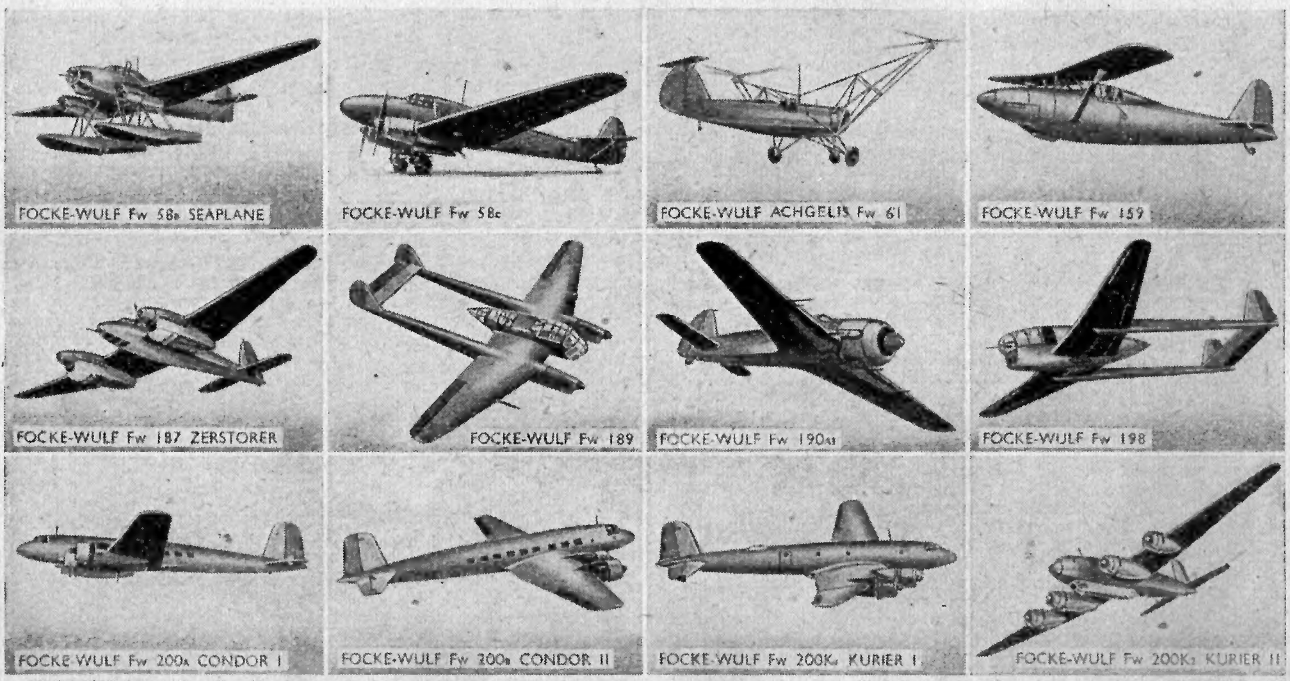
AMERICA LOOKS AHEAD.—A drawing by the Wright Aeronautical Corporation of New Jersey, U.S.A., showing a 500-ton air transport of the future, with six enclosed power-units driving contra-props. The tug gives scale to the flying-ship.

THE DOUGLAS AIRMASTER

DOUGLAS C-54 four-motor transport monoplanes of the U.S. Army Air Forces have now been officially named the Airmaster—a name previously used to designate the Cessna C-145 and C-165 four-seat cabin monoplane, but never used officially.

The Douglas C-54 Airmaster is the military transport version of the DC-4A and is in production with the C-46 Commando, C-47, C-53, C-69 Constellation and C-76 Caravan for the U.S. Army.

THE SPOTTERS' A.B.C.—XLV



FOCKE-WULF Fw 58B SEAPLANE

FOCKE-WULF Fw 58C

FOCKE-WULF ACHGELIS Fw 61

FOCKE-WULF Fw 159

FOCKE-WULF Fw 187 ZERSTORER

FOCKE-WULF Fw 189

FOCKE-WULF Fw 190AS

FOCKE-WULF Fw 198

FOCKE-WULF Fw 200A CONDOR I

FOCKE-WULF Fw 200B CONDOR II

FOCKE-WULF Fw 200K1 KURIER I

FOCKE-WULF Fw 200K2 KURIER II

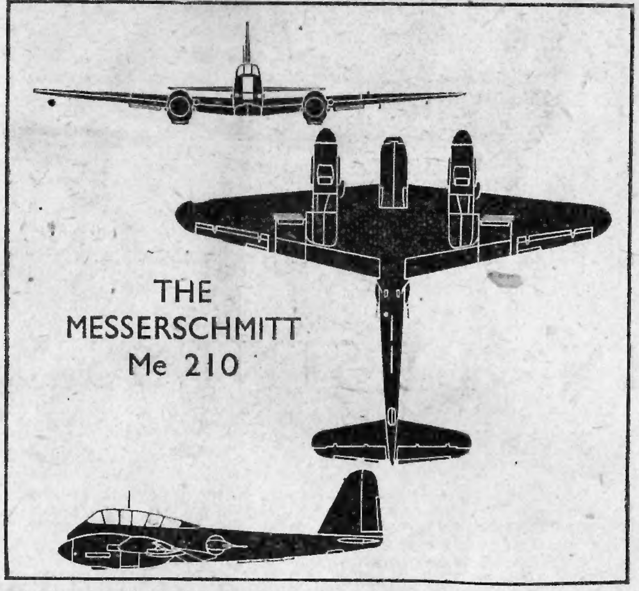
FOCKE-WULFS.—The **Fw 58B** is a twin float seaplane trainer. The maximum speed is 139 m.p.h. The **Fw 58C** is the transport version of the Weihe. [540 The **Focke-Achgelis Fw 61** is a single-seat helicopter with twin rotors. It holds a number of World's Records for helicopters, including speed (76 m.p.h. forwards and 20 m.p.h. backwards and sideways), height (7,900 ft.) and duration 1 hr. 20 mins. 49 secs. The **Fw 159** is a single-seat fighter of unusual appearance. It is not in production. The **Fw 187** is a two-seat fighter with a top speed of 362 m.p.h. It has not been a success, although several squadrons are in service. The **Fw 189** is a twin boom army co-op., ground attack and ambulance monoplane. The top speed is 222 m.p.h. The **Fw 190AS** is at present Germany's best fighter. Its top speed is 390 m.p.h. The **Fw 198** was built experimentally as a pusher fighter but did not prove successful. The top speed was 368 m.p.h. The **Fw 200A** and **Fw 200B** are two successive versions of the Condor transport, with top speeds of 233 m.p.h. (720 h.p. BMW 132G motors.) and 260 m.p.h. (1,000 h.p. Bramo Fafnir motors) respectively. An **Fw 200B** flew non-stop from Berlin to New York in 1938 at 159 m.p.h., and returned two days later at 207 m.p.h. The two versions of the **Fw 200K Kurier** have Bramo Fafnir and BMW 801 motors respectively. The top speeds are 248 m.p.h. and 279 m.p.h.

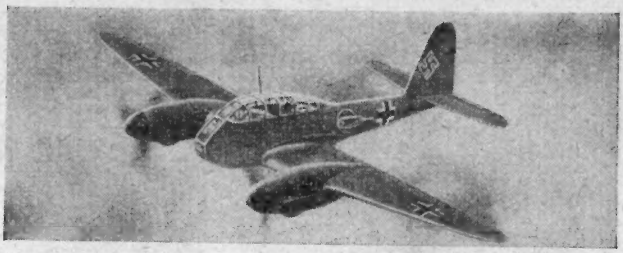
AIRCRAFT IN THE NEWS—LXXV

THE MESSERSCHMITT Me 210

MESSERSCHMITT Me 210 two-seat fighter-bombers are now in service with the Luftwaffe on three fronts—in Russia, over the Mediterranean area and flying from France. Several have been shot down by the latest British fighters. Rumour suggests that all is not well with the production of the Me 210 and that it has given a good deal of trouble in its construction and in service.

The Me 210 comes into the same general category as the Mosquito, although its performance appears to be inferior.





The Me 210 and the Mosquito are also somewhat alike in general appearance. With two 1,395 h.p. Mercedes-Benz DB-601E 12-cylinder inverted Vee motors the top speed of the Me 210 is about 365 m.p.h. at 19,680 ft. and the range about 1,500 miles at 275 m.p.h. with 2,205 lb. of bombs.

One of the most interesting features of the Me 210 is its armament. There are six guns in all; two fixed 20 mm. cannon in the sides of the nose with two 7.9 mm. machine-guns fixed between them. Behind the wings, on the sides of the fuselage, there are two remotely controlled gun positions each mounting one 13 mm. machine-gun with a wide field of fire. The crew of two sit in tandem above the fixed guns and above the bomb bay, which extends from the nose to the front spar of the wings.

DIMENSIONS.—Span, 53 ft. 9 in.; length, 40 ft. 3 in.; height, 16 ft. 6 in.

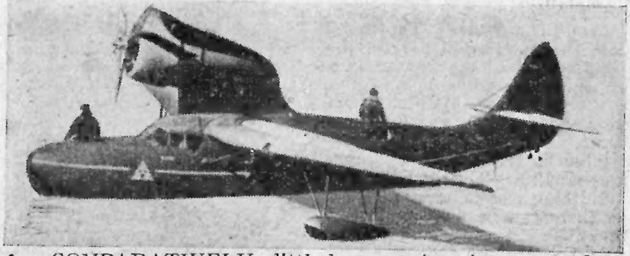
WEIGHT.—Loaded, about 20,000 lb.

PERFORMANCE.—Max. speed, 365 m.p.h. at 19,680 ft. Range about 1,500 miles at 275 m.p.h.

POINTS OF RECOGNITION.—Two-motor low-wing monoplane with tall single fin and rudder with straight leading and trailing edges. Very short nose, shorter than the long, fully cowled, liquid-cooled motors. Wings highly tapered with pointed tips. Radiators outboard of motor nacelles.

CIVIL IDENTIFICATION—LXXV

THE FAIRCHILD 91



A COMPARATIVELY little-known American aeroplane which is now in service with the Royal Air Force in the Middle East is the Fairchild 91. It is used by the Air-Sea Rescue Service operating from Cairo.

The Fairchild 91 (one 750 h.p. Pratt and Whitney Hornet or one 760 h.p. Wright Cyclone) is distinctive because it is an amphibian flying-boat with a single motor mounted on a raised nacelle which is faired into the upper surface of the centre section. The motor is inclined upward so as to reduce the effect of the centre of thrust being much above the centre of drag—a fact which results in a tendency to nose heaviness when the motor is running.

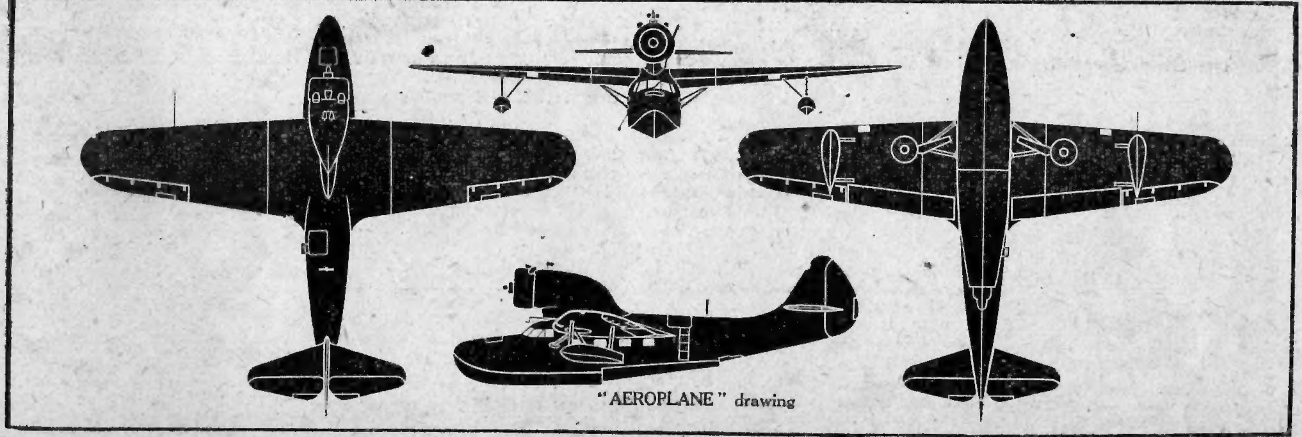
The Fairchild 91 was first built in 1936 and was intended for air-line use or as a luxurious private-owner's type. It is a high-wing cantilever amphibian flying-boat with retractable undercarriage and tail wheel and is of all-metal construction. Accommodation is for two pilots side-by-side in a cockpit aft of the mooring and freight compartment and for eight passengers in two cabins aft of the pilots' cockpit. The aft portion of the raised motor nacelle can also be used as stowage space.

DIMENSIONS.—Span, 56 ft.; length, 42 ft. 8 in.; height, 14 ft. 8 in.; wing area, 483 sq. ft.; aspect ratio, 6.48.

WEIGHTS.—**Empty, 6,596 lb.; loaded, 10,500 lb.**

PERFORMANCE.—Max. speed, 166 m.p.h. at 2,500 ft. (Hornet motor), 172 m.p.h. at 5,600 ft. (Cyclone motor); range, 665 miles at 150 m.p.h. at 2,500 ft. (Hornet), 700 miles at 158 m.p.h. at 5,000 ft. (Cyclone); initial climb, 840 ft. per min.; service ceiling, 15,600 ft. (Hornet motor), and 16,800 ft. (Cyclone motor).

POINTS OF RECOGNITION.—High-wing monoplane flying-boat with almost equal taper. Rounded tips sweeping back to the trailing edge. Long, rounded nose, two-step hull with angular wire-braced tailplane and fin built integral with hull. Undercarriage retracts outwards flush with the underside of the wing, and tail wheel retracts into well in underside of hull aft of second step. Radial upwards-inclined motor mounted on faired-in nacelle above pilots' cabin.

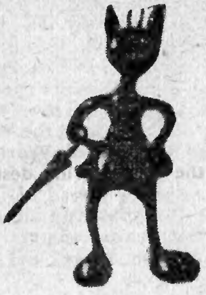


"AEROPLANE" drawing

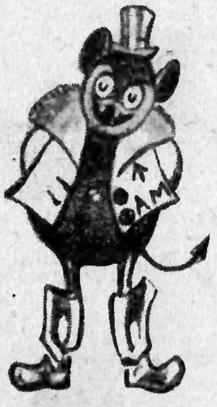
SEEING'S BELIEVING.—On the left, caught in the act, a Petrol Boozer about to plunge into the petrol tank of a Spitfire to reduce its range catastrophically, and, right, a sight-twisting Gremlin perched on the reflector sight of a Spitfire.

THIS GREMLIN BUSINESS

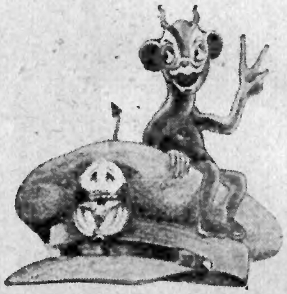
Illustrations by Keith Shackleton



The Trainee.



The Duty Gremlin.



The Officers' Mess variety.

GREMLINS are in the air Books and Brains Trusts discuss them. But as the authors and debaters rarely have had contact with operational stations or have experienced the activities of Gremlins at first hand, inevitably an unauthentic line is shot and a completely wrong impression created. In fact more duff gen has been written on Gremlins during the past two months than on any other aspect of Aviation—and that's no small achievement.

There have been Gremlins ever since flying started, although their activities were not recognised as such until about 1924 in the Middle East, where the emergence of these Gnomes from Fremlin beer bottles is said to have earned them their name. The many inexplicable happenings in aeronautics—the bursting of a tyre, the sudden breaking of a fuel line, the appearance of the ground in a completely unexpected place out of a cloud, the stoppage of a gun—all can be laid at the door of the Gremlins. Without them flying would be like the World before Pandora's Box was opened—for out of it Gremlins undoubtedly came.

The thing to remember about Gremlins is that unlike all other similar manifestations they are religious fanatics. Their single creed is that "there shall be no flying." Nothing else matters to them except this anti-flying religion. Thus there can be no Gremlins of motorcars for instance—although they can have their Troubles. But there can be and are Gremlins in the Aircraft Industry—and even in the Aeronautical Press. The Air Ministry and the M.A.P. are infested with Gremlins and one Technical Committee is known to be composed almost entirely of Gremlins, cunningly disguised as Group Captains and Squadron Leaders whose aversion to flying is equalled only by their predilection for the blue pencil. Just occasionally the Gremlins' "better nature" overrules their religious frenzy—and then they have been known to help instead of hinder.

But the really interesting Gremlins are the operational types—divided into three categories:—

(i) THE GREMLIN PROPER—operates up to about 18,000 ft.
(ii) THE SPANDULE—a high-flying type.
(iii) THE FIFINELLA—the female Gremlin (comparatively rare).

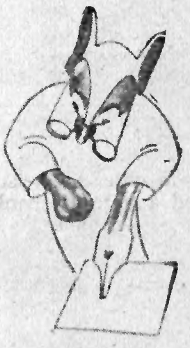
Every station has its own local breed and every aeroplane attracts its particular type. In certain hot or cold climates odd varieties of Gremlin breed profusely—such as those which push sand into the carburetters in Africa, or those which gum up the retracted wheels with snow in Russia. Incidentally, Gremlins do not breed in the normal sense of the word, but just split off and multiply as conditions require, like certain other forms of primitive life. Vapour trails are said to be productive of new forms of Gremlins which descend from them by parachute.

Exact classification is impossible because of the wide variety. But taken in general they appear to be about 5½ to 6½ in. high and coloured blue-grey. Some have clothes, some have not. They are neither hot nor cold-blooded and hence are equally at home sawing through a red-hot exhaust manifold or blocking the aileron hinge with ice at 40,000 ft. They are congenitally inquisitive and furthermore they have the ability to grow appendages to suit jobs in hand. For instance, if a bolt looks a likely object for exploration one hand will rapidly grow into pincers to remove the split pin and the other into a spanner to loosen the bolt.

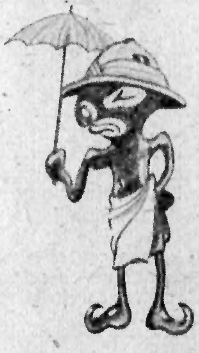
The following are brief specifications of a few of the various forms of Gremlin commonly met with and annotated after much research by Mr. Keith Shackleton, who has drawn them from life:—

(i) **Trainee.**—Small, black, armed with umbrella as a rule; this class serves a short apprenticeship with the

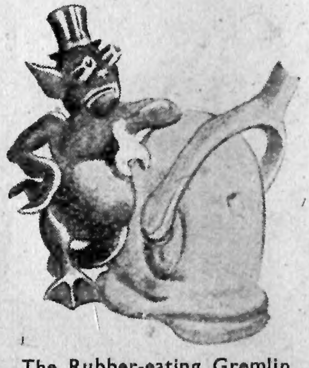
(Continued at foot of next page)



The Accountancy Gremlin.



The Tropical Gremlin.



The Rubber-eating Gremlin.

R.O.C.C.—THE SPECIAL GENERAL MEETING

A SPECIAL General Meeting of the Royal Observer Corps Club attended by Branch delegates from all over the country and by the Executive of the Club was held on January 3, 1943, at Claridges Hotel, London, to consider the decision to withdraw official support and title from the Club.

The assembly was addressed at length by the Commandant of the Royal Observer Corps, Air Commodore G. H. Ambler, O.B.E., A.F.C., who lucidly explained point by point the necessity for a new training scheme within the Corps itself, as distinct from the facilities for studying Aircraft Recognition formerly provided by the R.O.C. Club. The Commandant said that this new scheme would render those facilities redundant, but he paid glowing tribute to the Club's past work as pioneers in Aircraft Recognition.

After speaking, Air Commodore Ambler answered a large number of questions from the delegates, a good proportion of which were of a domestic character on Corps work and training.

Mr. P. H. Whitfield, as Chairman of the R.O.C.C. appointed by the Commandant, and Mr. A. P. Hamilton, as the Commandant's nominee on the General Council, then formally resigned.

Capt. F. H. Bailey (Hon. General Treasurer of the R.O.C.C.), as a member of the General Council, then took the Chair.

Many able speeches were made in the course of the subsequent debate. They revealed many different points of view on the need or otherwise for dissolution and on the framework within which a new Club might arise, assuming a decision was made to carry on.

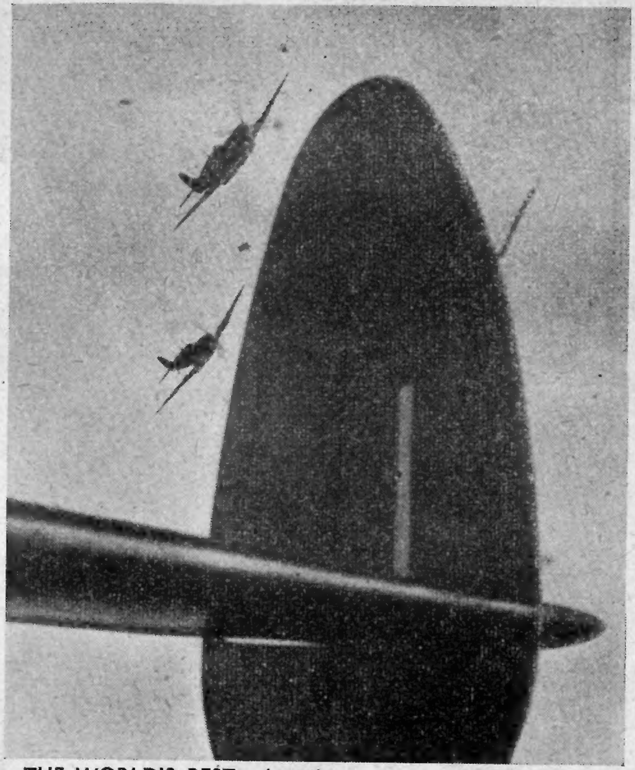
The resolution to dissolve the R.O.C. Club in accordance with Rule 50 was defeated.

The resolution to form a Committee to redraft the Constitution in such a manner that the Club should continue to function in a modified form under a new title was carried.

A further proposal that the members of the General Council as on Jan. 3 should form that Committee was also carried.

Col. F. L. Gore, C.I.E., D.S.O., delegate to the General Council from the North-Western Area of the R.O.C.C., then wound up the meeting by asking as a member of the Club for the fullest co-operation with the authorities in their new scheme in order to assist the national War effort. He then proposed a vote of thanks to Capt. Bailey for so ably presiding over a momentous part of the meeting, and this was carried with acclamation.

A verbatim report, subject to Security restrictions, of the Meeting was promised for circulation to all Branches.

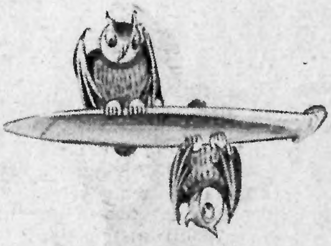


THE WORLD'S BEST.—A striking photograph of two Vickers-Armstrongs Supermarine Spitfire IX single-seat fighters (Rolls-Royce Merlin 61 motor) overtaking a Lockheed Hudson and demonstrating their fine manœuvrability. Throughout the War the Spitfire has maintained and enhanced its lead as the World's greatest fighter—a striking tribute to the Supermarine design team. Although there are now two radiators instead of one they add speed rather than drag, and the efficiently shaped extra fuel tank under the centre-section hardly affects the speed, although it adds materially to the range, and is jettisoned before fighting begins.

THIS GREMLIN BUSINESS

(Continued from preceding page)

The Fuel Boozer.



The Hangar Owl.

(ii) **Duty Gremlin,** who shows him the ropes. The D.G. himself is an inhabitant of the Watch Office and is responsible for winding-up trees in the path of approaching aircraft, or lowering the surface of the landing field, or both. Then there is the

(iii) **Officers' Mess** variety, adept at altering mess bills, and the

(iv) **Accountancy Gremlin,** a most offensive type. It rubs out signatures in log-books and on D.I. Forms and is well versed in all Service matters. Its activities have been traced right back to depredations on embryo aircraft on the drawing board.

(v) **Tropical Gremlin.**—Blows sand through the filters—it has a very cynical outlook on life. In this respect it is similar to its close associate, the

(vi) **Rubber-eating Gremlin.**—This unpleasant breed nibbles the insulation off electrical leads, bites holes in tail wheels and tyres and is vilely unpleasant about it. This leads up to the

(vii) **Fuel Boozer,** possibly the best known of all. It has large eyes and an enormous retractable suction-nose. There are said to be two sub-orders—the 75 and the 100 octane. Aviation fuel is his staple diet, but in his defence we must add that all Gremlins drink it to a greater or lesser extent. Fuel is to them what a gin and lime is to an M.O.

All Gremlins and Spandules have feet fitted with suction pads and interchangeable claws for use at high levels, where the rarified atmosphere makes a vacuum less effective. The Fifinellas are more slippery.

Two new Gremlins have appeared recently. They are:—

(viii) **The Gnome** (pronounced "Genomey") and

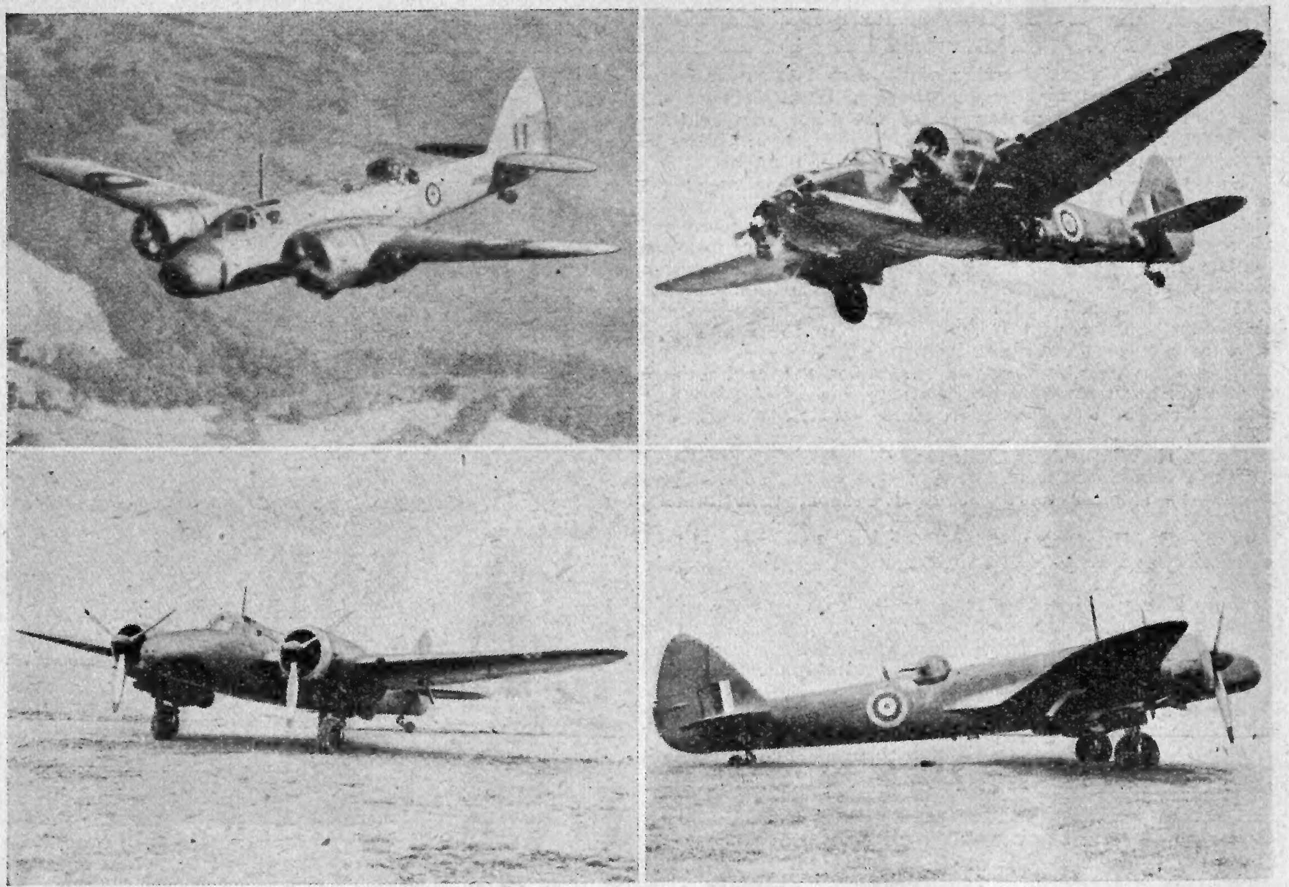
(ix) **The Hangar Owl.**—Their habits are practically identical except that the Gnome works out of doors, whereas the Hangar Owl never leaves his hangar. Between them they are responsible for all mishaps to stationary aircraft. This may not sound much, but it is unbelievable how a first-rate, modern aeroplane can deteriorate overnight.

These examples are a few of the many. The number of modifications and variations, Marks Vs and Vas would fill a book. Before we leave them happily playing see-saw on the artificial horizon and licking the phosphorus off the tracer bullets, we must mention the focal point of this vast organisation—the King Gremlin.

He is a jovial soul with a great sense of humour and he lives in Whitehall.

The Gnome.

The King Gremlin.



SUBJECT OF CONFUSION.—Photographs of the Bristol Type 160 in two of its various forms, the close support version with non-transparent nose called the Bisley by its makers and (top right) the day-bomber version with transparent nose and under gun position. It resembles the Blenheim V prototype.

LESSER KNOWN TYPES—LVI

THE BRISTOL TYPE 160

MUCH CONFUSION has arisen over the correct designation of the Bristol Type 160s. Officially both have been called Blenheim Vs and both have been called Bisleys, although the name Bisley is now officially abandoned. Accurately the Blenheim V was the prototype and a development of the Type 149L, whereas the Bisley was originally the name for the close support version only with the non-transparent nose, developed from the Blenheim V.

At least two versions of the Bristol 160 are in service; both closely related to each other and to the earlier Blenheims. Both these Bristol 160s are developed from the original Blenheim V prototype, which was a modification of the Bristol 149L (Blenheim IV) with various detail changes in structure and equipment. This prototype Blenheim V has a transparent nose and underneath gun blister.

The two versions of the Bristol 160 include a close support bomber with a non-transparent nose and a day bomber version with transparent nose in both tropical and home service forms. There is also a trainer version which is without the dorsal turret and underneath gun position in the nose.

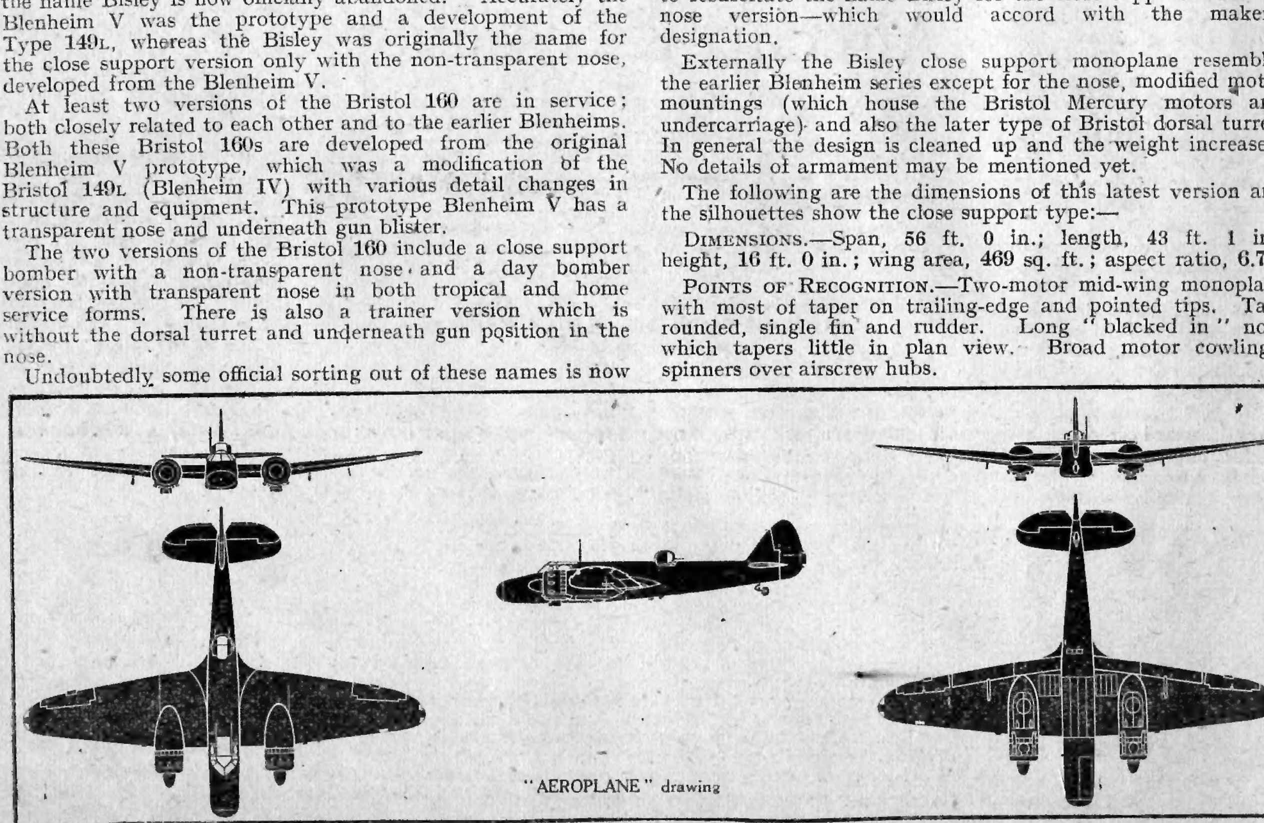
Undoubtedly some official sorting out of these names is now necessary to distinguish the various marks. Probably the best solution would be to transfer the name Blenheim V from the prototype to the transparent nose day bomber versions and to resuscitate the name Bisley for the close support "solid" nose version—which would accord with the maker's designation.

Externally the Bisley close support monoplane resembles the earlier Blenheim series except for the nose, modified motor mountings (which house the Bristol Mercury motors and undercarriage) and also the later type of Bristol dorsal turret. In general the design is cleaned up and the weight increased. No details of armament may be mentioned yet.

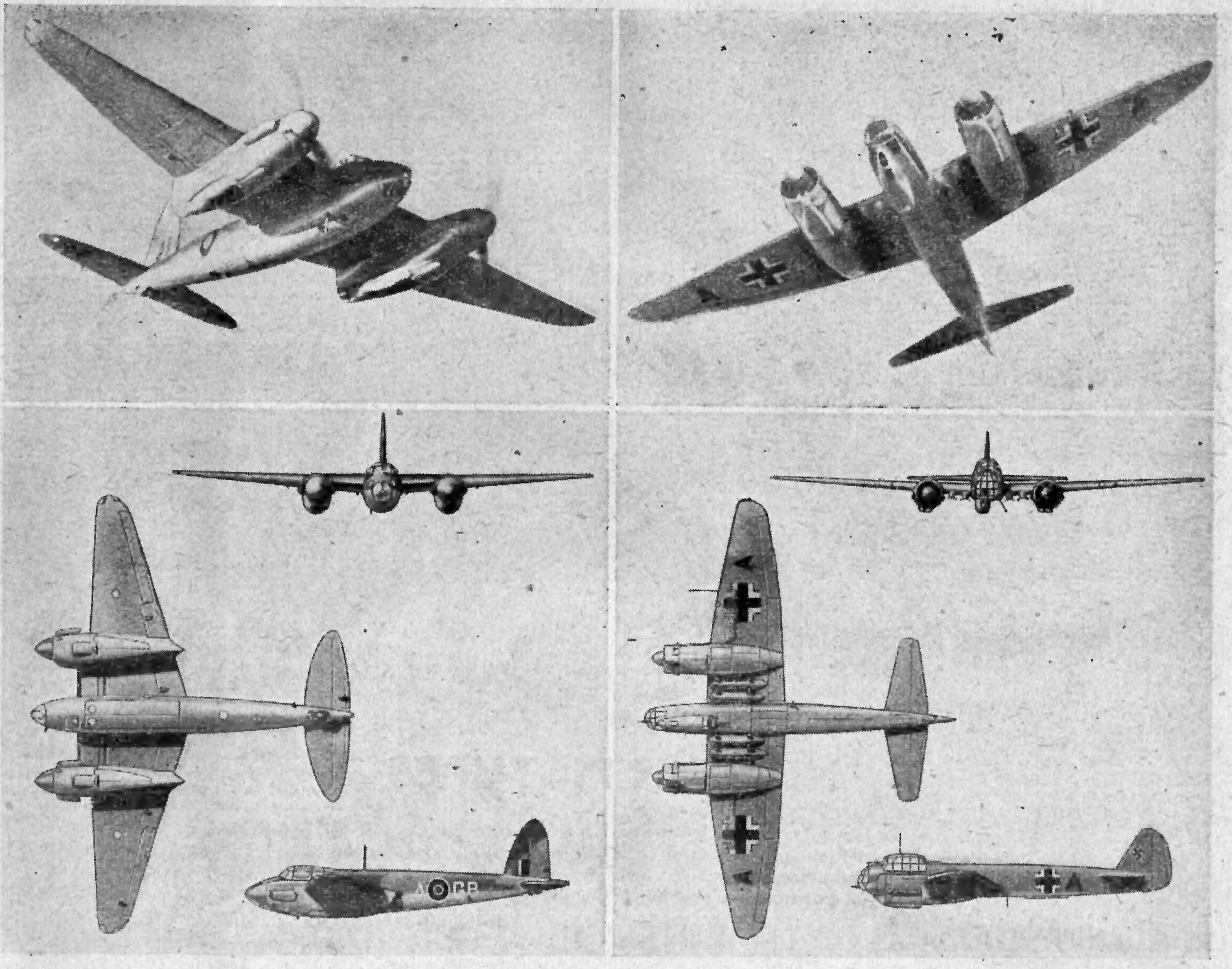
The following are the dimensions of this latest version and the silhouettes show the close support type:—

DIMENSIONS.—Span, 56 ft. 0 in.; length, 43 ft. 1 in.; height, 16 ft. 0 in.; wing area, 469 sq. ft.; aspect ratio, 6.79.

POINTS OF RECOGNITION.—Two-motor mid-wing monoplane with most of taper on trailing-edge and pointed tips. Tall, rounded, single fin and rudder. Long "blacked in" nose which tapers little in plan view. Broad motor cowlings; spinners over airscrew hubs.



"AEROPLANE" drawing



DETAILED ANALYSIS.—The points by which the subjects of the previous recognition problems can be recognised are illustrated in the photographs and drawings of the de Havilland D.H.98 Mosquito (left) and the Junkers Ju 88E (right).

Aircraft Recognition

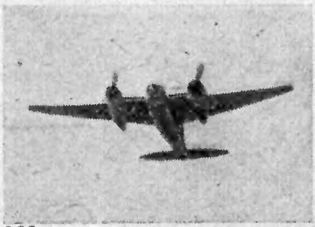
THE DE HAVILLAND D.H.98 Mosquito (two 1,280 h.p. Rolls-Royce Merlin 21 upright Vee liquid-cooled motors) and the Junkers Ju 88E (two 1,200 h.p. Junkers Jumo 211G1 inverted Vee liquid-cooled motors) were the subjects of the previous recognition tests.

The Mosquito is one of the most outstanding aeroplanes in service with the R.A.F. to-day. It combines long-range and high speed with a bomb load of 2,000 lb. and may have an offensive armament of four cannon and four machine-guns.

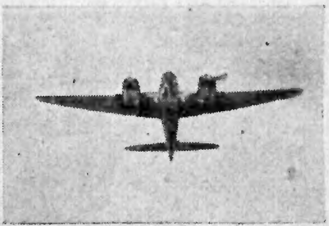
Viewed from this angle the points of recognition are the swept-forward shoulder wings with small rounded tips, large underslung motor nacelles, with the fairing protruding beyond the trailing edge of the wing, short transparent nose, small raised cockpit enclosure, and elliptically shaped tailplane and streamlined fuselage. A prominent feature just discernible is the radiator intakes set forward in the leading edge of the centre section.

The Ju 88 is one of the most versatile aeroplanes in service with the Luftwaffe. It has been in action since the outbreak of War and has been used as a precision bomber, dive bomber, long-range day and night fighter, reconnaissance and torpedo-bomber. The Ju 88E is one of the latest versions. The underslung trays on the motor nacelles and the cannon in the nose are new features.

Points of recognition from this angle are the low, straight tapered mid-wings, large underslung radial cowled motors, transparent nose, the offset blister under the forward part of the fuselage and straight tapered tailplane. At least one captured Ju 88A6 is flying in this country.

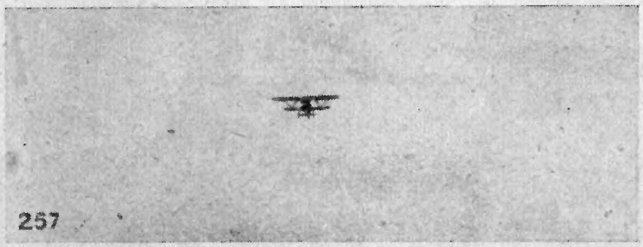


255

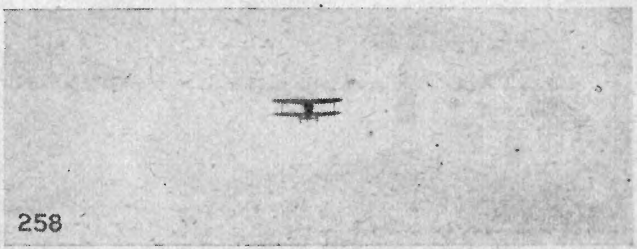


256

PREVIOUS PROBLEMS.—(Left) A Mosquito and (right) a Ju 88E.

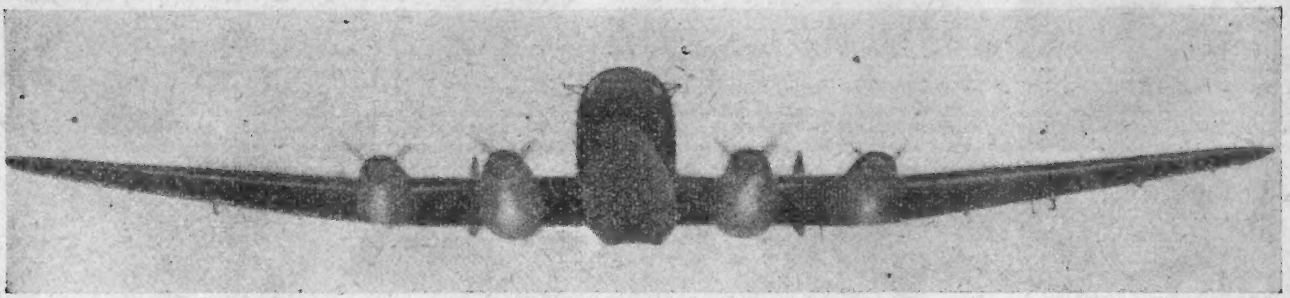


257



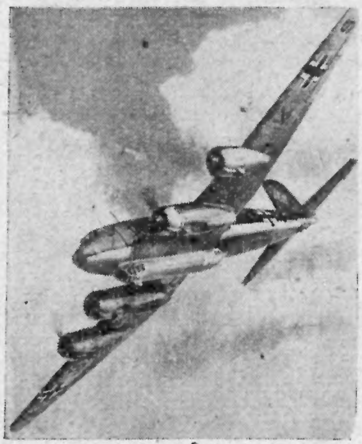
258

FOR IDENTIFICATION LXXV.—Two more photographs to give practice in the recognition of Allied and enemy aeroplanes. What they are and notes on their characteristics will be published with two more photographs on January 28.

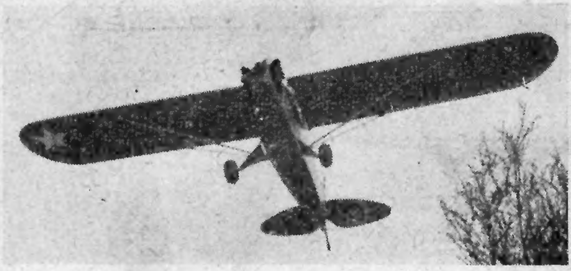


JUNKERS Ju 290 German multi-motor transport, also known, in Germany, as the Ju 90s (four 1,000 h.p. Bramo Fafnir 323 motors).

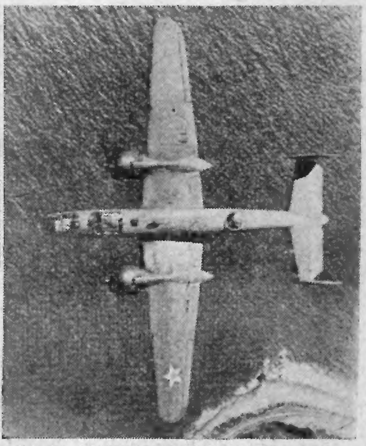
NEWS IN PICTURES



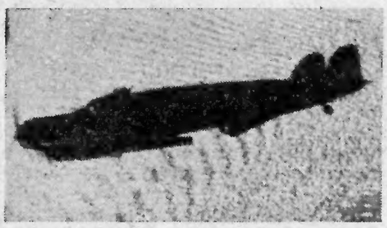
FOCKE-WULF Fw 200K3 Kurier II, long range reconnaissance bomber (four 1,600 h.p. BMW 801 motors).



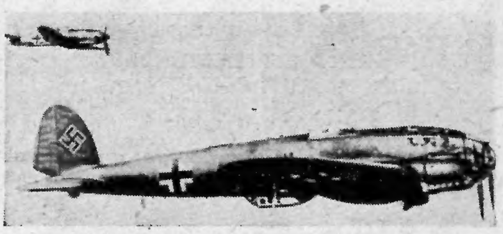
PIPER GRASSHOPPER (L-59), military version of Piper Cub, with tandem seating, light reconnaissance and communications monoplane (one 100 h.p. Lycoming motor).



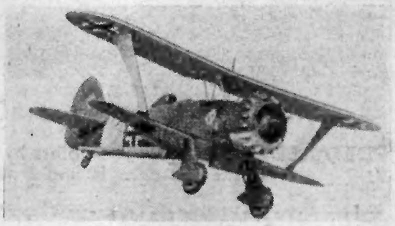
NORTH AMERICAN MITCHELL I medium bomber (two 1,600 h.p. Wright Double-Row Cyclone R-2600-A5B motors).



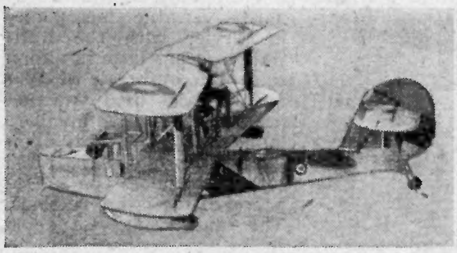
SAVOIA MARCHETTI S.M.84 land-based torpedo-bomber (three 750 h.p. Alfa-Romeo 126 R.C. 34 motors) in service over Mediterranean.



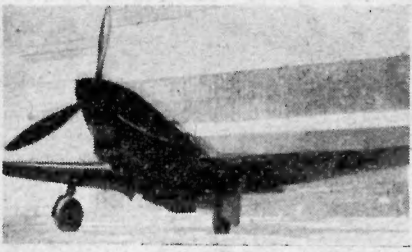
HEINKEL He 111HAE German heavy bomber (two 1,150 h.p. Mercedes-Benz DB 601N motors), and a HEINKEL He 113 single-seat fighter (one 1,150 h.p. Mercedes-Benz DB 601A motor).



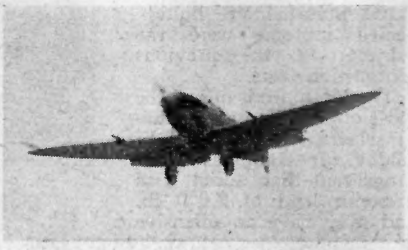
HENSCHEL Hs 123B obsolescent German dive bomber (one 870 h.p. BMW 132 motor) in service on Russian front.



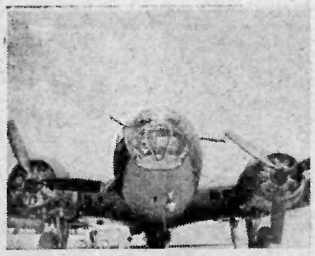
A VICKERS-ARMSTRONGS SUPERMARINE WALRUS II general purpose amphibian (one 775 h.p. Bristol Pegasus VI motor).



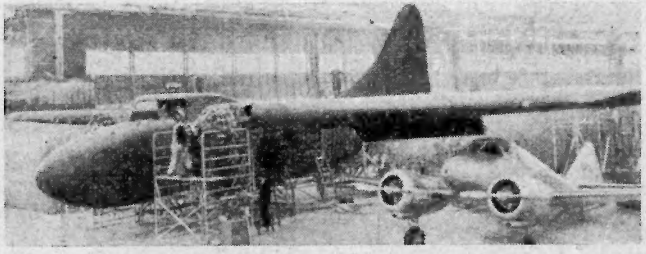
A YAK-1 (I-26) single-seat fighter (1,100 h.p. M-105 motor) of the Russian Air Force.



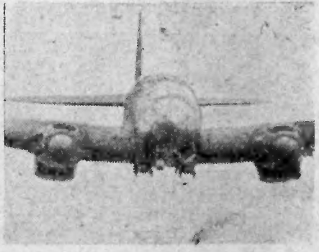
VICKERS - ARMSTRONGS SUPERMARINE SEAFIRE carrier-based fleet fighter (one Rolls-Royce Merlin motor).



BOEING FORTRESS II heavy day bomber (four 1,200 h.p. Wright Cyclone GR-1820-F65 motors).



CURTISS CARAVAN multi-motor transport (two 1,200 h.p. motors) and a CURTISS AT-9 advanced trainer (two 280 h.p. Lycoming radial motors).



HEINKEL He 111HAE land-based torpedo-bomber (two 1,150 h.p. Mercedes-Benz DB 601N motors)

THE NATIONAL ASSOCIATION OF SPOTTERS' CLUBS

GENERAL COUNCIL:
Hon. General Sec. (South): P. T. Sampson, 56, Forest Drive West, E.11.
General Sec. (North): Miss M. Duncan, 10, Eden Street, Riddrie, Glasgow.

Hon. Secs. of REGIONAL COUNCILS:
NORTHERN—T. Carver (pro tem.), Royal Grammar School, Eskdale Tr., Newcastle-on-Tyne.
N.-EASTERN—W. M. Sowerby, 9, Grange Park Pl., Leeds.
N.-MIDLAND—R. R. Langley, 80, Cornwall Rd., Kettering, Northants.
EASTERN—J. E. Barnes, 140, Moulsham Drive, Chelmsford.
LONDON—F. C. Palethorpe, 38, Bridgewater Road, Alperton, Middx.
SOUTHERN—A. Marple, 16, Bridge Street, Reading.
SOUTH-WESTERN—E. Griffiths, 25, Charlton Ave., Filton, Bristol, 1.
WELSH—W. H. Young, 21, Beaufort Pl., St. Julians Pk., Newport, Mon.
MIDLAND—G. C. Matthews, 239, The Broadway, Dudley, Worcester.
NORTH-WESTERN—H. Pearson, 12, Plymouth Street, Oldham.
SCOTTISH—Miss M. Duncan, 10, Eden Street, Glasgow.
SOUTH-EASTERN—P. Chinery, " Little Hemingfold," Battle, Sussex.

NEW SPOTTERS' CLUBS

WE HAVE RECEIVED notice of the formation of the following new Spotters' Clubs:—

No. 476.—**Alloa Raid Spotters' Association.**—(Hon. Sec.: George D. Scott, 48, Smithfield Loan, Alloa, Scotland.) *Scottish Region (No. 11).*

No. 477.—**Brighton Technical College S.C.**—(Hon. Sec.: J. D. S. Price, 15, The Cliff, Roedean, Brighton.) *South Eastern Region (No. 12).*

No. 478.—**52nd Sqdn. S.C.**—(Hon. Sec.: Jack Fearnley, 26, Cambrian Road, Leeds, 11.) *North Eastern Region (No. 2).*

No. 479.—**Cheltenham College S.C.**—(Hon. Sec.: R. S. Mockett, Hazelwell College Road, Cheltenham.) *South Western Region (No. 7).*

No. 480.—**Sentinel S.C.**—(Hon. Sec.: A. W. Silk, 17, Lowesmoor Terrace, Worcester.) *Midland Region (No. 9).*

No. 481.—**Romford Wing A.T.C.**—(Hon. Sec.: Plt. Off. F. Moore, R.A.F.V.R., A.T.C. Hdqrs., Quadrant Arcade, Market Place, Romford, Essex.) *Eastern Region (No. 4).*

No. 482.—**Crompton Parkinson S.C.**—(Hon. Sec.: J. E. Barnes, 140, Moulsham Drive, Chelmsford.) *Eastern Region (No. 4)*

No. 483.—**Wandsworth and District S.C.**—(Hon. Sec.: B. Stent, 91, West Hill Road, Wandsworth, S.W.18.) *London Region*

No. 484.—**Bynea Steel Works S.C.**—(Hon. Sec.: D. B. Thomas, Dyffryn House, Culfor Road, Loughor, Swansea, Glam.) *Welsh Region (No. 8).*

No. 485.—**Metal Castings Ltd. S.C.**—(Hon. Sec.: C. Whitfield, 4, Cornmeadow Lane, Worcester.) *Midland Region (No. 9).*

No. 486.—**Great Western Railway, Worcester S.C.**—(Hon. Sec.: W. E. Williams, C.M.E. Offices, Great Western Railway, Shrub Hill Stn., Worcester.) *Midland Region (No. 9).*

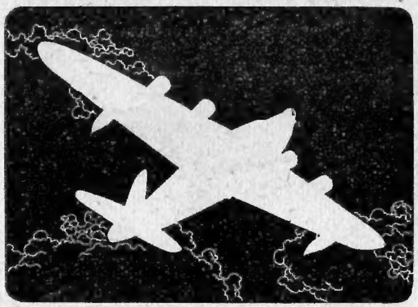
No. 487.—**Tolworth Group S.C.**—(Hon. Sec.: R. Lasham, 119, Brocks Drive, North Cheam, Surrey.) *London Region (No. 5).*

No. 488.—**Mitcham A.T.C. S.C.**—(Hon. Sec.: J. Wallace, 27, Framfield Road, Mitcham, Surrey.) *London Region (No. 5).*

FILM PROJECTORS

ONLY a very small number of Clubs have supplied information on the projectors they have available. As a small number of films other than 16 mm. sound are now available, *all* Clubs are asked to send full details of their projectors to P. T. Sampson, 56, Forest Drive West, London, E.11, including size (9 mm., 16 mm., or 35 mm., etc.) and type (sound or silent).

AEROPLANES IN OUTLINE—XXIX



The Short Sunderland I.

The small number of films other than 16 mm. sound which have been made available to Spotters' Clubs are being reserved, at present, for those Clubs which send full details to Mr. Sampson.

HINTS FOR LECTURERS

CLUB TRAINING OFFICERS are receiving a good supply of material of all types from the Ministry of Home Security, including, for Raid Spotter Clubs, copies of " The Inter-Services Journal on Aircraft Recognition," large scale silhouettes, loose leaf books of silhouettes, 1/72nd scale models of operational aeroplanes and the loan of numbers of instructional films. To this imposing list has just been added a booklet giving hints to lecturers. This booklet is being issued, with other information, to all Club Training Officers attending instructional courses organised and conducted by the Regional Raid Spotter Instructors of the Ministry of Home Security.

Non-Raid Spotter Clubs are receiving a smaller amount of equipment and the loan of the training films. Their Training Officers are receiving the same training, through the Regional Raid Spotter Instructors, as the Training Officers of Raid Spotter Clubs and will receive the new booklet when attending instruction courses.

There are still a number of Clubs not taking full advantage of the close co-operation between the Ministry of Home Security and the N.A.S.C. All Clubs not receiving equipment or Journals should write to their Regional Hon. Secretaries to prove that they are still active. When writing, details of membership and the numbers of Raid Spotters included in those memberships should be sent.

THE SCYLLA IN ACTION AGAIN

COMMANDED by Captain I. A. P. MacIntyre, C.B.E., D.S.O., R.N., H.M.S. Scylla, aboard which is Spotters' Club No. 384, chased for more than 200 miles and finally sank a German merchant ship on Tuesday, January 5.

A Coastal Command flying-boat shadowed the merchant ship until the Scylla was near enough to open fire. After firing one salvo ahead of the ship, to try and stop it, the Scylla opened up with her for'ard guns. Flames were seen to come from the superstructure and the crew abandoned the ship. The cruiser ceased fire until the lifeboats were cleared and then sank the blockade runner with a torpedo.

APOLOGY

THE COMMITTEE of No. 4 S.C. (Hatfield) regret to state that all papers relating to the Competition held by them in May, 1942, have been lost in transit, and all efforts to recover them have failed. The £3 received from entry fees, etc., is to be forwarded to the R.A.F. Benevolent Fund.

The Committee of the Hatfield Club hope that this decision meets with the approval of all who took part in the Competition.

IMPORTANT NOTICE

WILL CLUB OFFICERS please note that the Hon. Librarian's Office was abolished at the last A.G.M. and all material is now being ordered through the Hon. Assistant Organising Secretary.

FORTHCOMING EVENTS

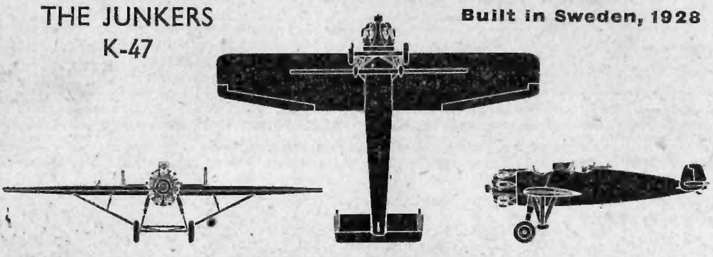
Jan. 14.—**Doncaster.**—S.C. 106.—Civil Defence Hqrs., French Gate.—
Jan. 14.—**Guildford.**—S.C 150.—The County Technical College, Stoke Park.—19.30 hrs.
Jan. 14.—**Crosby.**—S.C. 320.—St. Mary's College.—19.00 hrs.
Jan. 14.—**Westminster.**—S.C.142.—Thorneycroft House, Smith Square.—18.00 hrs.
Jan. 15.—**Glasgow.**—S.C. 35.—Competition Night.—Regional Bee, Inter-team Competition and Model Competition.—Cooper's Smokeroom, Howard Street.—19 30 hrs.
Jan. 15.—**Watford.**—S.C.118.—First and Second Class Tests.—Watford Public Library.—19.30 hrs.
Jan. 15.—**Kentish Town.**—S.C. 16.—Talk by Mr. Kirkman on " History of Colour Photography."—The North Western Polytechnic, Prince of Wales Road, N.W.5.—18.30 hrs.
Jan. 15.—**Hoddesdon.**—S.C. 128.—The Clock House.—19.30 hrs.
Jan. 15.—**Guildford.**—S.C. 150.—The County Technical College, Stoke Park.—19.30 hrs.
Jan. 17.—**Oxford.**—S.C. 162.—First Class Test.—City Police Station.—18.00 hrs.
Jan. 18.—**Beckenham.**—S.C. 110.—Visit of Liaison Officer and Business Meeting.—Bromley Road School.—19.30 hrs.
Jan. 19.—**Southend.**—S.C 1.—A.R.P. Hdqrs, 120 Victoria Road.—19.00 hrs.
Jan. 19.—**Stoke-on-Trent.**—S.C. 60.—Film Show.—Third Class Test.—Lecture Hall, Back Glebe Street.
Jan. 19.—**N. London.**—S.C. 156.—Northern Polytechnic, Holloway Road, N.7.—19.00 hrs
Jan. 19.—**Crosby.**—S.C 320.—St. Mary's College.—19.00 hrs.
Jan. 19.—**London.**—Meeting of Executive Committee of General Council.—Bowling Green Lane, E.C.1.—18.00 hrs.
Jan. 20.—**London.**—Meeting of Competitions Sub-committee of L.R.C.—Training Centre, South Kensington.—19.00 hrs.
Jan. 20.—**Hastings.**—S.C. 47.—Oddentification Contest.—White Rock Pavilion.—19.30 hrs.
Jan. 20.—**Rickmansworth.**—S.C. 81.—Instructional Films.—112, High Street.—19.30 hrs.
Jan. 20.—**Walton-on-Thames.**—S.C. 96.—Anglo-Iranian Oil Co., Ltd., New Zealand Avenue.
Jan. 20.—**Dagenham.**—S.C. 99.—Open Meeting at Ford's Sports Pavilion, Kent Avenue.—19.00 hrs.
Jan. 20.—**Sheffield.**—S.C. 178.—Geo. Senior and Sons, Ltd., Ponds Forge, Sheaf Street.—19.00 hrs.
Jan. 20.—**Newcastle.**—S.C. 272.—Crows' Nest Hotel.—19.00 hrs.
Jan. 21.—**Dudley.**—S.C. 113.—Lecture.—Hen and Chickens Inn.—19.00 hrs.
Jan. 21.—**Doncaster.**—S.C. 106.—Civil Defence Hdqrs., French Gate.
Jan 21.—**Guildford.**—S.C. 150.—The County Technical College, Stoke Park.—19.30 hrs
Jan. 21.—**Crosby.**—S.C. 320.—St. Mary's College.—19.00 hrs.
Jan. 22.—**Southampton.**—S.C. 94.—A.R.P. Central Division Hdqrs., 61, Highfield Lane.—19.00 hrs
Jan. 22.—**Hoddesdon.**—S.C. 128.—Preliminary and Third Class.—The Clock House.—19 30 hrs.
Jan. 22.—**Leeds.**—S.C. 148.—Classes for beginners and advanced Raid Spotters.—Room 7c, Albert Hall, Cookbridge Street.—18.00 hrs.
Jan. 23.—**Wembley.**—S.C.21.—" Bristol's in Peace and War."—A.T.C. Hdqrs., Barham Park.—19.30 hrs.
Jan. 25.—**South London.**—Third Class Test.—Brains Trust.—St. Joseph's College, A.T.C. Hdqrs., Crown Point, Streatham Common.
Jan. 25.—**Hendon.**—S.C. 124.—Instruction Talk and Recognition Competition.—Hendon Technical College.—19.30 hrs.
Jan. 26.—**N. London.**—S.C. 156.—Northern Polytechnic, Holloway Road, N.7.—19.00 hrs
Jan. 26.—**Crosby.**—S.C. 320.—St. Mary's College.—19.00 hrs.
Jan. 27.—**Blackfriars.**—S.C. 12.—The Cinema, Unilever House, E.C.4.—18.00 hrs.
Jan. 27.—**Belfast.**—S.C. 151.—45, Howard Street.
Jan. 27.—**Sheffield.**—S.C. 178.—George Senior and Sons, Ltd., Ponds Forge, Sheaf Street.—19.00 hrs
Jan. 27.—**Hackney.**—S.C. 181.—A.R.P. Hdqrs., 219, Mare Street, E.8.—18.30 hrs.
Jan. 27.—**Newcastle.**—S.C. 272.—Crows' Nest Hotel, Haymarket.—19.00 hrs.
Jan. 28.—**Westminster.**—S.C. 142.—Thorneycroft House, Smith Square.—18.00 hrs.
Jan. 28.—**Cambridge.**—S.C. 145.—Contest with Cambridge University Air Sqdn.—Chivers and Sons.—19.30 hrs.

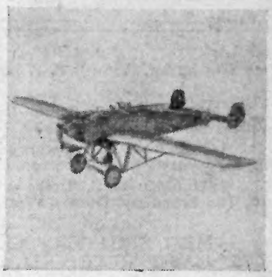
AIRCRAFT COMPARISONS—LXXV THE EVOLUTION OF THE STUKA

Span: 41 ft. 0 in.
Length: 28 ft. 0 in.
Height: 7 ft. 11 in.
Loaded Weight: 3,600 lb.
Max. Speed: 180 m.p.h. at 9,840 ft.
Bristol "Jupiter VII" supercharged radial motor, 420 h.p.

THE JUNKERS K-47

Built in Sweden, 1928

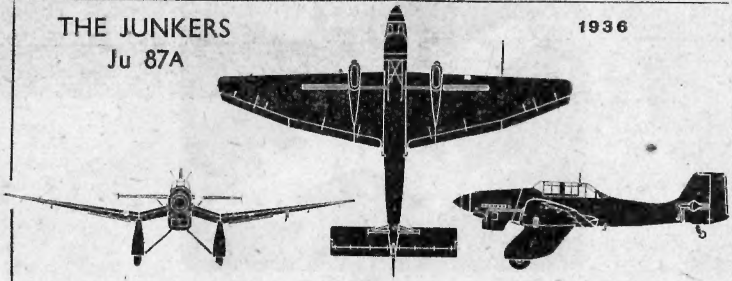




Span: 45 ft. 4 in.
Length: 35 ft. 5 in.
Height: 13 ft. 11 in.
Loaded Weight: 7,510 lb.
Max Speed: 198 m.p.h. at 12,000 ft. without bombs.
Junkers Jumo 210 in-line motor, 680 h.p.

THE JUNKERS Ju 87A

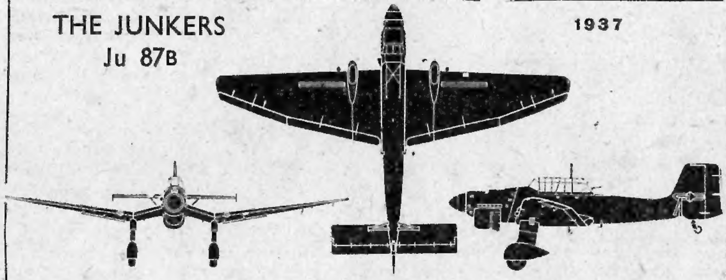
1936



Span: 45 ft. 4 in.
Length: 35 ft. 6 in.
Height: 12 ft. 9 in.
Loaded Weight: 9,370 lb.
Max. Speed: 242 m.p.h. at 13,500 ft. without bombs.
Junkers Jumo 211D in-line motor, 1,150 h.p.

THE JUNKERS Ju 87B

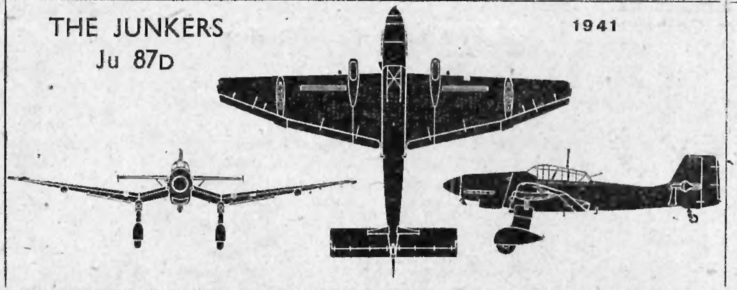
1937

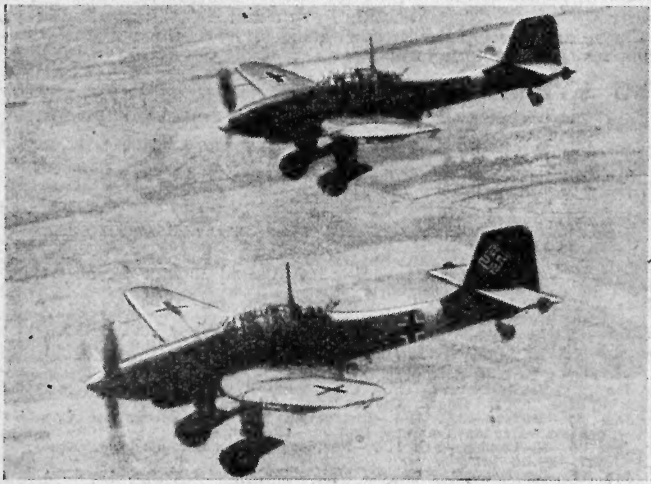


Span: 45 ft. 4 in.
Length: 35 ft. 6 in.
Height: 12 ft. 9 in.
Loaded Weight: About 9,500 lb.
Max. Speed: About 250 m.p.h. without bombs
Junkers Jumo 211F motor, about 1,200 h.p.

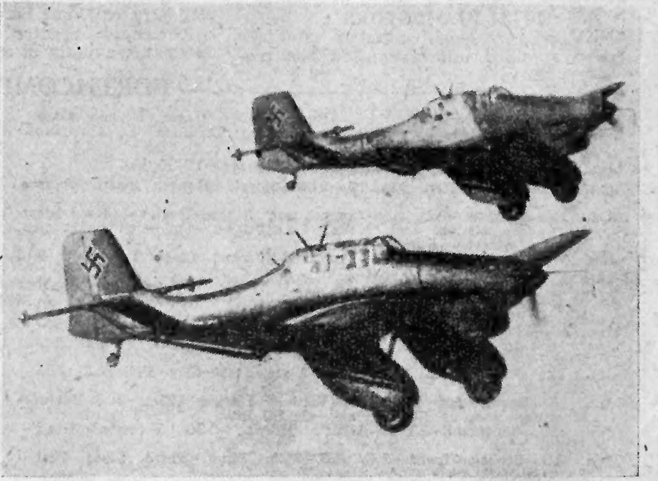
THE JUNKERS Ju 87D

1941





The Ju 87D—1941



The Ju 87A—1936

THE JUNKERS SINGLE-MOTOR DIVE BOMBERS.—The notorious series of Junkers Ju 87 dive bombers are all descended from the Junkers K-47 fighter-attack-bomber built in Sweden in 1928—thereby evading the terms of the Versailles Treaty. The K-47 in its turn can trace its descent from the Junkers A-20 built in Germany and in Russia in 1923. Dive bombing experiments were made with the K-47 and the experience gained incorporated in the Ju 87A which appeared in 1936. This machine was tried out in Spain together with the modified version, the Ju 87B. The Ju 87C was built in Italy under licence but differed in few particulars and in 1941 the Ju 87D appeared with a new motor and modified cowling and cockpit. Although the dive bomber has done well against poorly defended troops it has proved very vulnerable against strong fighter or A.A. defences. Production is now believed to be completed.

CORRESPONDENCE

TWIN FIGHTERS

CAN YOU tell me what advantages the single-seat, twin-motor, twin-boom fighter possesses over the orthodox single-seat fighter? E. SMITH.

[Examples of this type of fighter have been the Fokker D.23 and the Lockheed Lightning. The D.23 had tandem motors, tractor and pusher, with the pilot in between. The Lightning has tractor motors which fair into the booms. The advantages of the D.23 were: low drag as a result of small frontal area, compact distribution of weight—aiding manœuvrability—high-power from two motors, unimpeded wings for installation of heavy armament. The disadvantage was, difficulty of parachute escape for pilot because of propeller behind. The advantages of the Lightning are, centralisation of armament in the nose affording great hitting power, good view for the pilot, high power, space for large fuel capacity. The disadvantages are, high drag from three nacelles, reduced manœuvrability because of outboard motors, large size. Generally speaking, the single-seat single-motor single fuselage fighter will have a better combination of speed, climb and manœuvrability than the two-motor twin boom type, but the latter may be superior as a bomber destroyer and over long range.—ED.]

THE HOTSPURS

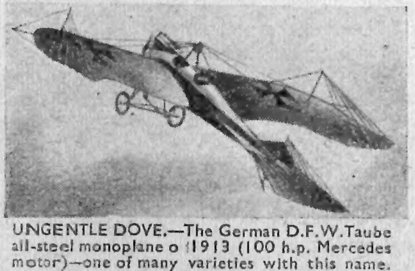
I FOLLOWED with much interest the Hurricane Evolution series, but was rather puzzled at the Hawker Fury Monoplane (named Hotspur). In your issue of Aug. 13, 1942, this machine was described as being fitted with a Merlin II motor, yet in your last issue it was stated to have a Rolls-Royce Goshawk. Also, it was without the turret. Is this a misprint, or is it a different machine altogether? PETER GORDON.

[The name Hotspur was given first to the Fury Monoplane single-seat fighter and, when that design was abandoned, was later bestowed on the Hawker two-seat fighter, only one of which was built.—ED.]

"THE TAUBES"

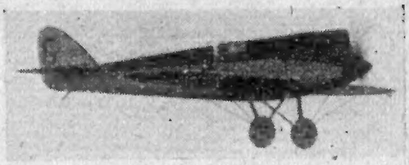
DURING the Great War the Germans used an aeroplane called the Taube which, I believe, was its nickname. Could you furnish a photograph and all the information you could of this type? R. SAUNDERS.

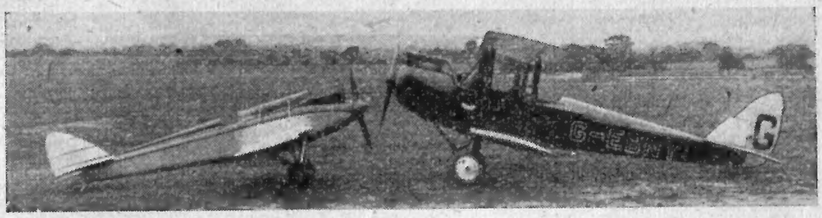
[The name "Taube"—a dove—was applied generically to a number of German aeroplanes built between 1912 and 1915. There were "Tauben" built by Albatross, D.F.W., Etrich, Gotha, Kondor, Jeannin, Roland and Rumpler. All were of the same general form—braced monoplanes with swept-back wings and pronounced "wash-out at the tips." The idea behind this plan form was to gain inherent stability, then considered very important. Later research, particularly at Farnborough, England, established the fact that stability is a function of the correct distribution of weights and surfaces.—ED.]



UNGENTLE DOVE.—The German D.F.W. Taube all-steel monoplane o 1913 (100 h.p. Mercedes motor)—one of many varieties with this name.

THE FIRST TIGER.—(Right) A photograph of the D.H.71 Tiger Moth monoplane of 1927. (Below) The Tiger Moth is shown spinner to spinner with the D H.60 Cirrus Moth of the same date





THE FIRST TIGER MOTH

ON LOOKING through "A Book About Aircraft" the other day, I came across a picture of a low-wing monoplane entitled D.H. Tiger Moth. This surprised me, as I understood that the biplane trainer was the only D.H. Tiger Moth. R. G. BOSWORTH.

[The original D.H. Tiger Moth (the D.H. 71) was built in 1927. It was a single-seat monoplane with the first Gipsy motor, giving 130 h.p. Although this first Tiger Moth was intended chiefly for research, it was flown in a number of air races, and in it Mr. Hubert Broad set up a World's Speed Record for Light Aeroplanes by covering 100 km. (62 miles) at an average speed of 186.4 m.p.h. That was in August, 1927. The span of the original Tiger Moth was only 22½ ft. It had a top speed of 193 m.p.h. —ED.]

TRAILS AND NOISES

I HAVE READ with great interest the letters published week by week in THE AEROPLANE SPOTTER about vapour trails seen by many Spotters.

Recently a Havoc passed overhead at about 350 ft. and travelling at about 200 m.p.h. It made a sharp turn to the starboard, and I saw faint white trails appear from the extended nacelles but disappearing almost instantaneously. Would that have been vapour or exhaust trails?

In your last issue a letter from K. Brittain was published enquiring as to the cause of a Boston emitting a whistling noise. The answer given was that it was probably due to apertures being open.

I heard a similar sound recently emitted by a Beaufort. For three minutes before the machine appeared over the trees I could hear this drawn-out owl hoot. The noise was so penetrating that I doubt an aperture could emit such a loud sound. Could there be any other explanation? Could it have been a siren, as used on aircraft before? HERBERT W. M. JAMES.

[The Havoc trails were probably exhaust trails which are distinct from wing-tip trails or fin trails. How loud a noise can be made by an open aperture can be heard by blowing across the open end of a tube—such as an empty cartridge case—in which the other end is closed.—ED.]

MORE AUDIBLE VORTICES

IN REPLY to Miss Soper's question in THE AEROPLANE SPOTTER on Dec. 17, concerning audible vortices and their causes, you stated that the phenomenon had only been recorded with the Mosquito.

Some weeks ago I was watching a demonstration of weapons. A Beaufighter I made several mock dive-bombing attacks and came very low, leaving vapour trals from the wing-tips. These extended for about 40 ft.

For several seconds after the aeroplane had pulled out of each dive, the rushing sound mentioned by Miss Soper was extremely noticeable.

Could the explanation be that the sound is caused by the disturbed air in the slipstream? A. J. MARSHALL.

FIGHTER BOMB LOADS

IN THE AEROPLANE SPOTTER of Nov. 19 you say that the Hurricane bomber can carry two 500 lb. bombs, making a total of 1,000 lb. Yet in your issue of Dec. 31 you say that the Me 109E can carry only a 110 lb. bomb. Surely the Hurricane cannot carry nine times the weight of bombs the Me 109E can. BRUCE SIMPSON.

[The Hurricane II fighter-bomber now carries alternatively:—

(a) Two bombs of 250 lb. each = total 500 lb. of bombs.

(b) Two bombs of 500 lb. each = total 1,000 lb. of bombs.

(c) Eight bombs of 112 lb. each = total 896 lb. of bombs.

The top speed of the Hurricane IIB with two 250-pounders is 320 m.p.h. at 19,700 ft. With two 500 lb. bombs the top speed is 307 m.p.h. at 19,500 ft.

Although the Messerschmitt 109E was intended to carry a single bomb of 1,210 lb. under the fuselage, this proved too big a load either for take-off or safety in the air. As a result a single bomb of only 110 lb. is normally carried now. The same applies to Me 109F.—ED.]

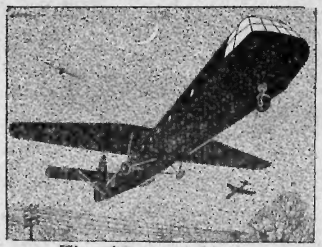
WHEN NOT TO SHOOT

I FEEL that the following incident might be of interest to you. It took place during a somewhat noisy daylight alert. The sound of gunfire and bombs had been getting nearer when, suddenly, most of the A.A. in the neighbourhood opened up. They were firing at two aeroplanes flying very low and fast across the outskirts of the town. As I live on the outskirts, I had a very close view of these aeroplanes—a Typhoon and a Spitfire IX.

A R.O.C. friend told me later that they had informed the gunners of these two aeroplanes approaching. The gunners didn't know what the Typhoon was, so they opened fire. Happily enough, their aim was as bad as their recognition. D. GORVETT.

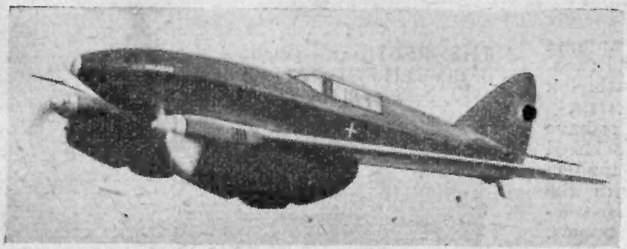
[The gunners cannot be blamed entirely. The hold-up in the issue of recognition material on the Typhoon imposes a severe handicap on all Arms. —ED.]

ODDENTIFICATION—XC



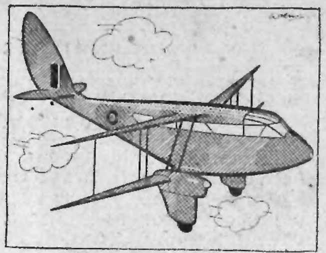
The Airspeed Horsa.

FAMOUS AIRCRAFT—II



THE DE HAVILLAND COMET—1934.—Three de Havilland D.H. 88 Comets (two 230 h.p. Gipsy Six R motors) were designed, built and flown within seven months and were ready just in time to start in the MacRobertson Race to Australia on October 20, 1934. One of the Comets, G-ACSS, flown by C. W. A. Scott and T. Campbell-Black, won the Race, covering the 11,300 miles in 70 hours 54 minutes 18 seconds at an average speed of 160 m.p.h. from start to finish including all stops. In the other Comets the Mollisons reached Baghdad non-stop in 12 hours 40 minutes for the 2,530 miles, and O. Cathcart Jones and Ken Waller flew from Mildenhall to Hatfield by way of Australia in 13 days 6 hours 43 minutes. In 1938 Clouston and Ricketts flew to New Zealand and back in 10 days 21 hours 22 minutes. They used the original MacRobertson winner modified by Essex Aero Ltd. In all seven Comets were built. Of these, two were sold to France, two to Portugal, one was crashed in Campbell Black's attempted flight to Africa and the crew baled out, the MacRobertson winner was bought by the R.A.F. and later returned to civil life, was used by Clouston and still exists. The top speed of the original version was 235 m.p.h., the span 44 ft. and the loaded weight 5,250 lb. It had a range of 2,580 miles at 210 m.p.h. at 10,000 ft.

ODDENTIFICATION—XCI



The D.H. Dominie.

DO YOU KNOW?—XLVI

1. The makers of (a) the S.V.4B, (b) the Calcutta?
2. The weight and position of the bomb load in the Me 210?
3. The aeroplane with the highest aspect ratio in the World?
4. For what purpose the Handley Page "Gugnunc" was built?
5. Three theoretical advantages of contra-rotating airscrews?
6. Who designed the (i) Blenheim, (ii) Beaufort, (iii) Oxford?
7. An aeroplane, without nose or tail turrets, equipped with power-operated ventral and dorsal turrets?
8. The machine from which the Russian L-760 was developed?
9. A twin-finned, twin-boom aeroplane with no undercarriage?
10. Two six-engined aeroplanes with twin fins and rudders?

SOLUTION TO "DO YOU KNOW?"—XLV

1. The Agusta AG-B6 originated in Italy, the Hanriot H.220 in France, and the Anbo 51 in Lithuania.
2. Lord Rothermere.
3. The Handley Page H.P.43.
4. Phillips and Powis Miles Magister and de Havilland Moth Minor.
5. Both the half-scale model of the Stirling and the experimental version of the Short Scion Senior which preceded the "C" class Empire Flying-boats were powered by four 90 h.p. Pobjoy Niagara motors.
6. The Canadians call the Douglas DB-280 the Digby.
7. Martin Mariner and Fiat Marina MR 10.
8. Fieseler Fi 99.
9. Heinkel He 111.
10. The I-18 is also designated the I-61, the I-200 and the MIG 3.

SPOTTERS' CLUB IN SOUTHGATE

Mr. D. A. Pollock is hoping to form a Spotters' Club in the Southgate and District area of Greater London. All interested in the formation of a club should write to Mr. Pollock at 4, Broadfields Avenue, Winchmore Hill, London, N.21.

SPOTTERS' CLUB IN SOUTHBOROUGH

Mr. A. G. Timpson, of 68, Prospect Road, Southborough, Kent, is endeavouring to form a Spotters' Club in Southborough. All local Spotters and others interested are invited to contact Mr. Timpson.

THE SPOTTERS' GLOSSARY OF AERONAUTICAL TERMS

SUPER-COMPRESSION ENGINE.—A high-compression motor designed for full-power operation only above a predetermined height. At lower levels the throttle opening is controlled by a throttle gate.

SUPERHEAT.—A term used in airship piloting to denote the difference in temperature between the gas in the airship's envelope and the surrounding atmosphere.

SUPER-SONIC SPEED.—A speed greater than the speed of sound through the medium concerned. The speed of sound in air is about 770 m.p.h. at sea level, falling to about 660 m.p.h. at 36,000 ft. At supersonic speeds bodies have high drag and cause a loud noise as with the airscrew tips of the Harvard.

SUPPORTING SURFACES.—The lifting surfaces of an aeroplane or glider.

SURFACE FRICTION DRAG.—The drag caused by the actual contact of the air flowing over a body with the surface of that body.

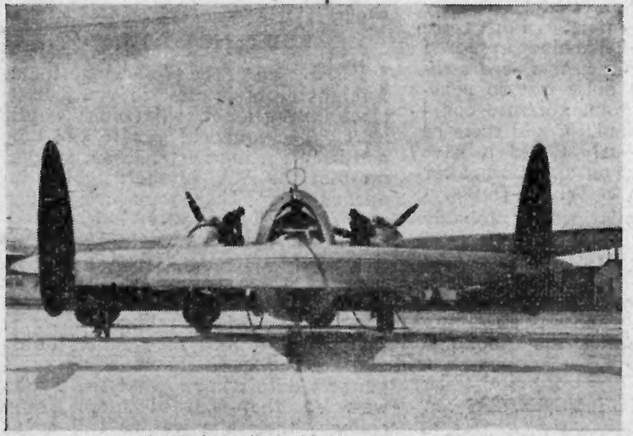
SURFACE RADIATOR.—An aero engine's radiator so mounted as to form an integral part of one or more of the aeroplane's external surfaces. These radiators were used on some of the later Schneider Trophy floatplanes, but have fallen from favour since the introduction of the ducted radiator almost universally used at present.

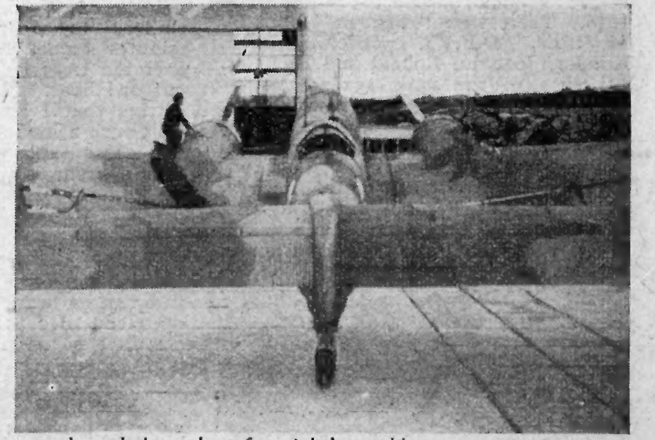
SUTTON HARNESS.—A system of four straps used to hold a pilot in his seat during aerobatics. It consists of two straps passing over the pilot's shoulders and two others over his thighs. The four meet in a quick-release pin in front of the pilot's chest.

SWEEP BACK.—The mainplanes of many aeroplanes are so designed as to appear bent backwards in plan, the tips being aft of the centre section. The angular set back of the planes is known as "sweep back."

SWINGING BASE.—Another term for a compass base which is a circular level piece of ground on which aeroplanes are stood while their compasses are calibrated. Lines marking the points of the compass are usually marked out on the base so that the aeroplane can be correctly aligned in each direction.

(To be continued.)





WHERE AND WHAT?—Two more problems to test your knowledge. Last fortnight's problems were (left) a General Aircraft Owlet and (right) a Reid and Sigrist Trainer (Snargasher).

Printed in England and Published Fortnightly by the Proprietors TEMPLE PRESS LTD., BOWLING GREEN LANE, LONDON, E.C.1.
AGENTS ABROAD—U.S.A.—The International News Co., New York, N.Y. CANADA—W. Dawson & Sons (Subscription Service), Ltd., Toronto, etc.; Imperial News Co., Ltd., Toronto, etc.; Gordon & Gotch, Ltd., Toronto. AFRICA—Central News Agency, Ltd., Cape Town, etc., W. Dawson & Sons (S.A.), Cape Town. INDIA—A. H. Wheeler & Co., Allahabad, Bombay, Calcutta, etc. AUSTRALASIA—Gordon & Gotch (A'sia). Ltd. Sydney. Melbourne, Adelaide, Brisbane, Perth, Launceston, Wellington, etc.